



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/750,755 | 01/05/2004 | Jiin-Huey Chern Lin | LINJ3054/EM | 1696 |
| 23364 | 7590 | 11/01/2006 | EXAMINER | |
| BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314 | | | ROE, JESSEE RANDALL | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1742 | |

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/750,755

Applicant(s)

CHERN LIN ET AL.

Examiner

Jessee Roe

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on April 20, 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-11, 14-17 and 20-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-11, 14-17 and 20-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims Status

1. Claims 1-3, 6-11, 14-17, and 20-24 remain for examination wherein claims 3, 6, 11, and 17 are amended; claims 23 and 24 are new; and claims 4, 5, 12, 13, 18, and 19 are canceled.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9, 10, 11, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent 62-199744A (JP'744).

4. In regards to claim 9, JP'744 discloses a method of improving the castability of a titanium alloy since it discloses a titanium alloy consisting essentially of 0.05-2 wt% bismuth, and/or niobium, zirconium, hafnium, tantalum, and the balance titanium (See Page 2, claim 1).

5. In regards to claim 10, JP'744 discloses a method of adding 0.05-2 wt% bismuth (See Page 2, claim 1).

6. In regards to claim 11, JP'744 discloses a method for improving the castability of a titanium alloy consisting of at least one alloy element selected from the group

Art Unit: 1742

consisting of niobium, zirconium, hafnium, tantalum and one or more from the group of nickel and cobalt. 0.05-2% bismuth may be added to the titanium alloy.

7. In regards to claim 14, JP'744 discloses a method for improving the castability of a titanium alloy consisting essentially of titanium and niobium; titanium and zirconium; and titanium, niobium, and zirconium.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-3, 6-8, 15-17, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'744 in view of Prasad (US 5,091,148) with evidence from Connie Daughtry (<http://news.ufl.edu/2000/02/08/teeth-spray>).

10. In regards to claim 1-3, 6-8, 15-17, and 20-22, JP'744 discloses a method for improving the castability of a titanium alloy substantially as claimed in paragraphs 4-7 above. Titanium alloys are expected to be resistant to corrosion within a salt and acidic environment (Pg. 4 of JP'744). The Examiner asserts that acids would corrode teeth and that salts and acids directly contact the teeth via food, soda beverages, and citrus beverages. The article, "UF Dental Researcher Develops Genetically Altered Bacteria Strain That May Fight Cavities For A Lifetime", by Connie Daughtry, gives information

Art Unit: 1742

that in addition to direct contact by acidic food and beverages, bacteria such as *Streptococcus mutans* digest sugars to produce acid. This acid would also corrode teeth as well exposing the teeth to both a direct and indirect source of acid and creating a reoccurring acidic environment.

11. JP'744 discloses a titanium alloy that is resistant to corrosion as shown above, but JP'744 does not disclose using a titanium alloy for a medical device such as a dental casting.

12. Prasad teaches in the same field of invention (corrosion resistance within an acidic environment) that titanium alloys are desirable for medical devices such as dental castings because titanium alloy dental castings would resist acid corrosion (col. 2, lines 5-22).

13. Therefore, it would have been obvious to one of ordinary skill in the art, having information from the article, "UF Dental Researcher Develops Genetically Altered Bacteria Strain That May Fight Cavities For A Lifetime" by Connie Daughtry, at the time the invention was made to mold the titanium alloy, as disclosed by JP'744 to form a titanium alloy medical device such as a dental casting as disclosed by Prasad, in order to prevent acid corrosion of the teeth, as disclosed by Prasad (col. 2, lines 5-22).

14. In regards to claims 23 and 24, JP'744 discloses a method substantially as claimed in paragraphs 4-7 above. The Examiner asserts that titanium has natural iron impurities when separated from the ore.

Response to Arguments

15. Applicant's arguments filed April 20, 2006 have been fully considered but they are not persuasive. The Applicant uses language such as "consists essentially" which allows for another element to be present in a small amount (Pt in an amount of 0.01-0.12 wt%, for example). Some foods and beverages are acidic (general knowledge). When we consume foods contain sugars, bacteria such as *Streptococcus mutans* digest the sugar and form a waste product known as lactic acid (resource available to one of ordinary skill in the art).

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP §706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 1742

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessee Roe whose telephone number is (571) 272-5938. The examiner can normally be reached on Monday-Friday 8 AM - 4:30 PM.

18. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

19. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JR


ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700